Empirical Asset Pricing, Fall 2020

Week 2: Thursday Discussions

December 3, 2020

General Guideline:

- **Presenter:** For each topic, we will have two students, each presenting for 30 minutes. If the topic is on a paper, then the first student will present and the second student will discuss. Ideally, I would like both the presenter and discussant to have replicated the key results of the paper before their presentations.

- **Audience:** For students who are not presenting, please pick one of the topics and write as a presenter (or a discussant). Please write your report as an article, not as slides. Ideally, I would like you to have replicated the key results of the paper before writing your report. The report is due at the beginning of the class.

We will focus on three papers, Pastor and Stambaugh (2003), Ang, Hodrick, Xing, and Zhang (2006), and Hu, Pan, and Wang (2013), which are motivated by different research questions but share the same technique – use cross-sectional (stock or hedge fund) returns as test portfolios to estimate the market price of a risk factor. In the case of Ang, Hodrick, Xing, and Zhang (2006), the risk factor is the VIX index. In Pastor and Stambaugh (2003), it is the equity-market liquidity factor, and in Hu, Pan, and Wang (2013), it is a risk factor that reflects the overall liquidity condition.

Here are the specific tests I have in mind. Please feel free to elaborate and add any comments and observations above and beyond the specific requirements.

1. Pick a five-year rolling window, and perform the following regressions for month-t,

$$R_t^i - r_f = \alpha^i + \beta^{\mathrm{M},i} \left(R_t^M - r_f \right) + \beta^{\mathrm{I},i} \Delta I_t + \epsilon_t^i,$$

   where I_t is the index of your choice: the VIX index, the Pastor-Stambaugh liquidity factor, or the noise measure of Hu, Pan, and Wang. Use monthly returns and monthly changes in the index.

2. Every month, re-sort stocks by their Index beta, β^I, into 10 portfolios. For simplicity, you can use equal-weighted portfolio returns to create a table with the following information for the 10 portfolios:

- The average portfolio returns in excess of the riskfree rate.

- The CAPM alphas of the ten portfolios.

- Pre-formation β^M, β^I, and R-squared's.

- Post-formation β^M, β^I, and R-squared's.